

ABSTRACT OF THE DISCLOSURE

09/407542

5 A planar lightwave circuit (PLC) is formed to include switching  
elements in which optical coupling among waveguides is determined by  
positions of displaceable members, such as micromirrors. Each switching  
element includes at least two light-transmitting waveguides extending along a  
waveguide substrate to a trench. The optical coupling between the  
10 waveguides of a switching element is dependent upon the optical  
characteristics exhibited at the trench. The displaceable device of a switching  
element has a transmitting position and a reflecting position. The  
displaceable device may be manipulated using microelectromechanical  
system (MEMS) techniques or techniques similar to those used in a dot matrix  
15 printer engine. The trench at the crosspoint of waveguides may include a  
liquid having a refractive index that closely matches the refractive index of the  
core material of the waveguides. If no index-matching liquid is included at the  
trench, the walls of the trench are preferably coated with an anti-reflection  
coating.